

Application No. 10/020,033

Reply to Office Action of July 27, 2006

JAN 26 2007

REMARKS

In previous communications, the Examiner rejected claims 1-31 and restricted claims 35-42. In this response, Applicants have amended claims 1, 11, 15, 16, 19 and 20, cancelled claims 14, 29 and 35-42, added new claims 43-46, and provided a supplemental Information Disclosure Statement. Upon entry of the amendments, claims 1-13, 15-28, 30-31 and 43-46 will be pending in the application.

In addition, Applicants have summarized an interview, which was conducted with the undersigned, Dr. Netemeyer, Mr. Banki, Examiner Proctor and Examiner Rodriguez on January 10, 2007. In the interview, Applicants discussed the prior art rejections, deficiencies of the prior art, restriction, and the claimed subject matter, which are discussed further below. Applicants appreciate the Examiner's consultation. Accordingly, reconsideration of the rejections and allowance of the pending claims is respectfully requested.

Restriction Requirement

In the Office Action, the Examiner constructively elected claims 1-31, and withdrew claims 35-42. In the present response, Applicants have cancelled claims 35-42.

Information Disclosure Statement

In the Office Action, the Examiner referenced certain prior art that was included in the Notice of References Cited. In an abundance of caution, Applicants have included a supplemental Information Disclosure Statement with this response. The Commissioner is authorized to charge the appropriate fees to the Deposit Account No. 05-1328. If this amount is in error or additional fees are required, the Commissioner is authorized to charge the appropriate fees to the deposit account noted above. Accordingly, Applicants respectfully request the Examiner consider the references cited in the supplemental Information Disclosure Statement.

Rejection under 35 U.S.C. § 112

In the Office Action, the Examiner indicated that recitations of claims 11 and 20 are indefinite for failing to particularly point out and distinctly claim the subject matter which

application regards as the invention. In particular, the Examiner asserted that the recitation of "an object-oriented language with features and scope suited to embody facility management logic," as recited in claim 11 is indefinite. Accordingly, Applicants have amended claim 11 to recite "the facility management control language is an object-oriented language that is parsed prior to conversion into the object-oriented-facility management code to verify syntax." Support for this amendment can be found at least in the passages on pages 21-22 and in Appendix 1 of the specification. As this amendment is not believed to add any new matter, entry of this amendment is respectfully requested.

Further, the Examiner asserted that "the main simulation system," as recited in claim 20, has insufficient antecedent basis for this limitation. Accordingly, Applicants have amended the phrase to recite "a main simulation system." As this amendment is not believed to add any new matter, entry of this amendment is respectfully requested.

Amendments to the Claims and Claim Interpretation

In the Office Action, the Examiner provided a claim interpretation section discussing various recitations in the claims. While Applicants do not necessarily agree with certain interpretations, Applicants have amended the claims in the present response to clarify certain aspects, as discussed with the Examiner. In particular, Applicants have amended claim 1 to include some of the recitations of claim 14 and amended claim 20 to include some of the recitations of claim 29. Claim 1 has also been amended to include phrases, such as "a processor" and "memory couple to the processor." These amendments are at least supported by the passages on pages 7-10 and 21-26 of the specification. As these amendments are not believed to add any new matter, entry of these amendments are respectfully requested.

Further, in view of the consultation with the Examiner, Applicants have amended claims 15 and 16 to clarify certain recitations. Specifically, in claim 15 and 16, Applicants have removed the phrase "thereby enabling," and added certain terms to clarify the subject matter of the claims. While these amendments merely clarify the claimed subject matter, these amendments are at least supported in the above cited passages. In addition, Applicants have amended claim 19 to clarify certain recitations based on the amendments to claim 1.

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As this amendment merely clarifies the claimed subject matter, this amendment supported by the original claim and in the passages cited above. As the amendments are not believed to add any new matter, Applicants respectfully request entry of the amendments.

Rejection under 35 U.S.C. § 103

The Examiner rejected claims 1-31 under 35 U.S.C. § 103 (a) as being unpatentable over "Object Oriented Visual Interactive Simulation" by Vujosevic (herein referred to as "Vujosevic") in view of U.S. Patent No. 6,052,520 to Watts et al. (herein referred to as "Watts"). Applicants respectfully submit that the Vujosevic and Watts references do not disclose or teach the claimed subject matter.

In the rejection of independent claims 1 and 20, the Examiner asserted that Vujosevic teaches all of the recited features except the intended use of the simulation system for transport phenomena through a model of a physical system. *See* Office Action, pages 9-10. In an attempt to cure these deficiencies, the Examiner asserted that these features are provided by Watts. *See id.* However, the cited references, alone or in combination, fail to disclose all of the recited features in each of the independent claims, as discussed below.

To begin, Vujosevic describes a system to provide visual interactive modeling, which involves a user in all stages of a simulation experiment. *See* Vujosevic p. 490, Introduction. In particular, Vujosevic describes that a simulation user creates a simulation model of a system layout, which may be used for developing future simulations. *See id.* Further, Vujosevic describes developing a framework for the Object Oriented VIS system, which includes an FMS model class that includes information about a particular FMS simulation model and activities, an FMSView class that displays graphical description of the FMS simulation model and animates display during the simulation experience, and a FMSController class that controls the user model interaction. *See id.* at p. 491. Through this framework, the user is able to interrupt the simulation run, make changes in the model, and continue the simulation. *See id.* at p. 491. In fact, these changes in the model are stored after the simulation is complete. *See id.* at pp. 491 and 495.

However, Applicants respectfully submit that Vujosevic does not disclose or teach the claimed subject. For example, Vujosevic does not provide or suggest that the object-oriented software is configured "integrate, without intervention of the simulator user, the object-oriented code with the main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated simulation system, wherein the object-oriented code extends the simulation data model by creating new classes that inherit from the simulation data model, and the object-oriented code is configured to call functions of the integrated simulation system and use member data of the integrated simulation system," as recited in claim 1, and a computer-implemented method that has the steps of "integrating the object-oriented code with a main simulation system which comprises a simulation data model and simulation algorithms, resulting in an integrated simulation system for simulating the physical system, wherein the converted object-oriented code extends the simulation data model by creating new classes that inherit from the simulation data model, and the object-oriented code is configured to call functions of the integrated simulation system and use member data of the integrated simulation system," as recited in claim 20. As such, the approach in Vujosevic is different from recitations of the present claims.

As noted above, the Examiner relied upon certain passages of Vujosevic to teach specific aspects of the claimed subject matter. In particular, the Examiner appears to correspond the changes in a passage on p. 495 of Vujosevic to the "object-oriented code" of claims 1 and 20. However, the process in Vujosevic appears to be deficient for various reasons. First, it is unclear how the changes to the VIS simulation in Vujosevic are integrated with a main simulation system without intervention of the simulator user. That is, Vujosevic describes that the VIS system allows an end-user to develop a graphical model of the system to be simulated, as opposed to developing a part of the model, which is integrated with a main simulation system. See Vujosevic, p. 490, Introduction. Further, Vujosevic describes that the VIS system requires the extensive participation of the user in all phases of a simulation experiment. See *id.* As such, the user appears to be involved in the integration.

Furthermore, the user in Vujosevic appears to be involved with the addition of any new classes. While the changes do include changes to the simulation model and possible

simulation driver's computer code, the changes do not appear to provide or suggest the addition of any new classes. While Vujosevic describes that it is possible to add more modeling and simulation capabilities by defining new methods or classes, these additions are from the perspective of a Smalltalk-80 programmer, not by the simulator user, and certainly not without intervention of the simulator user. *See id.* at p. 491, A Framework for Development of an Object Oriented VIS System. That is, Vujosevic again appears to require intervention by a user to add new classes.

Moreover, the changes in Vujosevic do not appear to be able to call functions of the integrated simulation system and use member data of the integrated simulation system. Again, while the changes do include changes to the simulation model and possible simulation driver's computer code, Vujosevic does not appear to provide or suggest that the changes call functions or use member data of the integrated simulation system. As such, Vujosevic does not appear to disclose all of the claimed subject matter of claims 1 and 20.

Furthermore, while Watts is only used in combination with Vujosevic for the use of the simulation system for transport phenomena through a model of a physical system, Watts does not cure the deficiencies of Vujosevic and does not provide the subject matter discussed above. The Watts reference discloses a process for predicting behavior of a subterranean formation. *See Watts*, col. 1, lines 9-12. In Watts, the method includes constructing a mathematical model of a reservoir, discretization of the mathematical model in time and space, linearize the nonlinear terms in the equations, and solve the linear equations. *See id.* at col. 1, lines 35-55. Watts does not appear to provide the integration of object-oriented code based on constructed logic with a main simulation system, which comprises a simulation data model and simulation algorithms. Accordingly, as Watts fails to disclose the claimed subject matter of claims 1 and 20, it fails to cure the deficiencies of Vujosevic.

Accordingly, Applicants respectfully submit that the Vujosevic and Watts references do not support a *prima facie* case of obviousness. Therefore, Applicants respectfully request that the Examiner withdraw the rejection and allow the pending claims 1-13, 15-28 and 30-31.

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New Claims 43-46

New claims 43-46 have been added in this response. These claims depend from independent claim 1 and 20. The recitations of claims 43-46 have been crafted to focus more on other aspects described in the specification. *See e.g.* Application; pages 2-3, 7-9 and 12-21. Accordingly, as claims 43-46 are clearly supported by the specification, these claims are believed to be patentable at least for the reasons set forth above with respect to claims 1 and 20.

Fees

With regard to the new claims, Applicants have cancelled one independent claim and seven dependent claims and added four dependent claims in this response. Accordingly, no additional fees are believed to be due at this time. If this amount is in error or additional fees are required, the Commissioner is authorized to charge the appropriate fees to the deposit account the Deposit Account No. 05-1328.

In addition, Applicants hereby request a three month extension in the statutory period from October 27, 2006 to January 27, 2007 in accordance with 37 C.F.R. § 1.136. The Examiner is hereby authorized to charge the Deposit Account No. 05-1328 for the fee associated with this extension of time. Further, if any additional fees are required, the Commissioner is authorized to charge the appropriate fees to the deposit account noted above.

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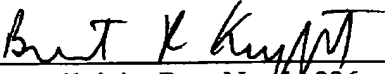
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Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Date: January 26, 2007


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I hereby certify that this correspondence is being transmitted via facsimile to Examiner Proctor, Technology Center 2100, United States Patent and Trademark Office at (571) 273-8300 on January 26, 2007.


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